



Docket No. 500.45682X00
Serial No. 10/560,225
September 15, 2006

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Currently amended) A friction stir welding method for a lap joint, in which a plurality of members are lapped and a welding tool is pressed into one of the members, while being rotated, to cause friction stir to achieve welding, characterized in that the method comprises using, as the welding tool, a welding tool having a small diameter projected part at a tip end of a shoulder, and pressing the projected part and the shoulder of the welding tool into one of the members, wherein at least two of the plurality of members are of different metals from each other, and wherein the welding tool is pressed into only said one of the members.
2. (Original) The friction stir welding method according to claim 1, characterized in that the small diameter projected part is semispherical in shape.
3. (Original) The friction stir welding method according to claim 2, characterized in that a recess is provided on the shoulder around the projected part.
4. (Original) The friction stir welding method according to claim 1, characterized in that an outer peripheral surface of a tip end of the shoulder of the welding tool is inclined to define an inclined surface.

5. (Original) The friction stir welding method according to claim 1, characterized in that an outer peripheral surface of a tip end of the shoulder of the welding tool is rounded.

6. (Currently amended) The friction stir welding method according to claim 1, characterized in that the welding tool is pressed into only said one of the members and a welding boundary surface is activated and welded by plastic flow, in which such pressing causes material of the one of the members to be discharged to an outer periphery of the welding tool.

7. (Currently amended) A friction stir welding method for a lap joint, in which a plurality of members are lapped and a welding tool is pressed into one of the members, while being rotated, to cause friction stir to achieve welding, characterized in that a tip end of the welding tool is semispherical in shape, said welding tool is pressed into only the one of the members, and at least two of the members are of different metals from each other.

8. (Currently amended) The friction stir welding method according to claim 7, characterized in that only a part of the semispherical shaped portion of the welding tool is pressed into only the one of the members to make a contact angle between the welding tool and a surface of the one of the members an acute angle.

9. (Previously presented) The friction stir welding method according to claim 7, characterized in that the welding interface is activated and welded by causing the one of the members to undergo plastic flow.

10. (Currently amended) A friction stir welding method for a lap joint, in which a plurality of members are lapped and a welding tool is pressed into one of the members, while being rotated, to cause friction stir to achieve welding, characterized in that a tip end of the welding tool is flat and an outer peripheral surface thereof is rounded, the welding tool is pressed into only one of said plurality of members, and at least two of said plurality of members are of different metals from each other.

11. (Currently amended) The friction stir welding method according to claim 10, characterized in that the whole of the flat portion of and only a part of the rounded portion of the welding tool are pressed into only the one of the members.

12. (Previously presented) The friction stir welding method according to claim 10, characterized in that a welding interface is activated and welded by causing the one of the members to undergo plastic flow.

13. (Currently amended) The friction stir welding method according to claim 1, characterized in that the welding tool is pressed into only the one of the members to cause friction stir of the member one of the members and then pulled out to perform spot welding.

14. (Currently amended) The friction stir welding method according to claim 1, characterized in that the welding tool is moved in a direction of welding in a state, in which the welding tool is pressed into only the one of the members.

15. (Previously presented) The friction stir welding method according to claim 1, characterized in that lapped surfaces of the plurality of members are coated with soft metal.

16. (Original) The friction stir welding method according to claim 15, wherein the soft metal is any one of nickel, zinc, and copper.

17. (Previously presented) The friction stir welding method according to claim 1, characterized in that a trapezoidal member is provided on a surface of the one of the members on that side, into which the welding tool is pressed, to prevent an indentation produced due to pressing of the welding tool.

18. (Previously presented) The friction stir welding method, according to claim 1, characterized in that one of the members is provided on a lapped surface thereof with a groove, another of the members is provided on a lapped surface thereof with a projected part, and the projected part is fitted into and welded to the groove.

19. - 22. (Cancelled).

23. (New) The friction stir welding method according to claim 1, wherein said shoulder has a diameter which is 8-20 times a thickness of said one of the members into which the welding tool is pressed.

24. (New) The friction stir welding method according to claim 7, wherein the tip end of the welding tool makes a contact angle in a range of 5° - 20° with the member into which the welding tool is pressed.

25. (New) The friction stir welding method according to claim 1, wherein the plurality of lapped members are face-to-face.

26. (New) The friction stir welding method according to claim 7, wherein the plurality of lapped members are face-to-face.

27. (New) The friction stir welding method according to claim 10, wherein the plurality of lapped members are face-to-face.

28. (New) The friction stir welding method according to claim 1, wherein said welding tool is pressed into said one of the members in a thickness direction thereof, and does not extend through an entirety of the thickness of said one of the members.

29. (New) The friction stir welding method according to claim 7, wherein said welding tool is pressed into said one of the members in a thickness direction thereof, and does not extend through an entirety of the thickness of said one of the members.

30. (New) The friction stir welding method according to claim 10, wherein said welding tool is pressed into said one of the members in a thickness direction thereof, and does not extend through an entirety of the thickness of said one of the members.